UNIVERSITY OF CENTRAL FLORIDA

CENTER FOR RESEARCH IN COMPUTER VISION

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"Computational Modeling of Bottom-up and Top-down Attention and Relations to Visual Recognition"

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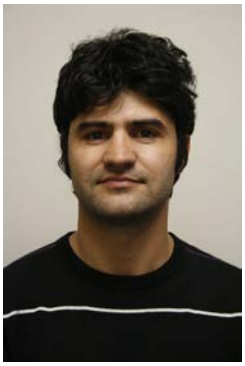

ABSTRACT

Over the last two decades, the inter-disciplinary fields of attention, visual saliency, and search have attracted a lot of interest in cognitive sciences, computer vision, and machine learning. In this talk, I intend to give a snapshot of biological findings on visual attention, theoretical background on saliency concepts and models, illustrating successful applications of saliency models, as well as their relations to scene understanding and object recognition. I will cover three topics in more detail: 1) bottom-up, stimulus-driven and 2) top-down, task-driven visual attention, and 3) usefulness of visual attention for scene understanding. In each case, I will first present some psychological studies followed by some computational models. My concentration will be on my own research and models, current state in saliency modeling, model benchmarking, and future directions.

BIOGRAPHY

Ali Borji received his BS and MS degrees in computer engineering from the Petroleum University of Technology, Tehran, Iran, 2001 and Shiraz University, Shiraz, Iran, 2004, respectively. He received his PhD degree in computational neurosciences from the Institute for Studies in Fundamental Sciences (IPM) in Tehran, 2009. He then spent a year at the University of Bonn as a research assistant. He was a postdoctoral scholar at iLab, University of Southern California, Los Angeles from March 2010 to August 2014. Currently, he is an assistant professor at the University of Wisconsin, Milwaukee, USA. His research interests include computer vision, machine learning, and neurosciences with particular emphasis on visual attention, visual search, active learning, scene and object recognition, and biologically plausible vision models.